



POLIOMYELITIS SURVEILLANCE REPORT

FOR ADMINISTRATIVE USE

REPORT NO. 245

November 3, 1961

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SUPPLEMENT NO. 42 - POLIOMYELITIS VACCINATION
SURVEY, HARRISBURG, PENNSYLVANIA
AUGUST, 1961



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SPECIAL NOTE

This report is intended for the information and administrative use of those involved in the investigation and control of poliomyelitis and polio-like diseases. It presents a summary of provisional information reported to CDC from State Health Departments, Virology Laboratories, Epidemic Intelligence Service Officers, and other pertinent sources. Since much of the information is preliminary in nature, confirmation and final interpretation should be determined in consultation with the original investigators prior to any further use of the material.

SUMMARY

There has been a slight decrease in the number of poliomyelitis cases reported for the current week ending October 28. A total of 51 cases, 37 paralytic, was reported as compared to the 59 cases, 39 paralytic, which were reported during the previous week.

Cases continue to be scattered geographically with the exception of additional cases reported from Erie County, Pennsylvania. Narrative reports are included from Pennsylvania, New York and California.

A current summary of enterovirus isolations, including three epidemiological reports, is presented in Section 5. A listing of areas in which immunization programs have been conducted with oral poliovaccine is included in Section 6.

The results of the poliomyelitis immunization survey in Harrisburg, Pennsylvania are presented as a supplement to this report. Both inactivated and oral vaccine have been administered in Harrisburg.

1. CURRENT POLIOMYELITIS MORBIDITY TRENDS

A total of 51 cases of poliomyelitis, 37 paralytic, was reported during the 43rd week ending October 28. This represents a small decrease from the number reported last week as illustrated in Figure 1. Reported cases appear to have reached a peak in mid-September and are now gradually declining.

The current cumulative total and paralytic case counts remain far below those of recent years. The table below presents a comparison of these figures. Paralytic cases reported thus far in 1961 constitute only 38 percent of those reported during this similar period in 1957 and 1960, the previous low years.

Polio (Cumulated Weekly) Through 43rd Week for Past Five Years

	<u>1961</u>	<u>1960</u>	<u>1959</u>	<u>1958</u>	<u>1957</u>
Paralytic	727	1,932	4,908	2,460	1,911
Total	1,129	2,798	7,491	4,998	5,497

Twenty of the 50 States contributed to the totals as shown in Table 1. New York with 14 cases, 10 paralytic, reported the greatest State total, but the 10 paralytic cases were scattered over 9 counties. Pennsylvania reported 5 cases, 3 from Erie County, and Maryland accounted for 3 paralytic cases from different counties. California reported 4 paralytic cases from scattered communities in Los Angeles County. The 2 Wisconsin cases are from Wood County. No new outbreaks or concentrations have been noted.

2. REPORTS

A. Pennsylvania

Dr. I. F. Gratch, Epidemiologist, Pennsylvania Department of Health, reports an additional 3 cases of paralytic poliomyelitis in Erie County. This brings the total number of paralytic cases in Erie County to 10; nine of the 10 cases have occurred since September 19. The cases are presented below:

<u>Initials</u>	<u>Age</u>	<u>Race</u>	<u>Sex</u>	<u>Date of Onset</u>	<u>Paralytic Involvement</u>	<u>Vaccination History</u>	<u>Laboratory Isolations</u>
J.D.	4	W	F	8-18	Spinal	0	
J.W.	17	W	M	9-19	Paralytic	1	Type I
J.C.	2	W	M	9-20	Spinal	0	Type I
C.F.	7	W	F	9-22	Paralytic	0	Type I
S.C.*	9	W	F	9-23	Bulbar	3	
M.A.	4	W	M	9-24	Spinal	3	
T.C.*	5	W	M	9-25	Spinal	0	
F.W.	8	W	M	10-1	Bulbar (Death)	0	Type I
D.C.	12	W	M	10-7	Spinal	0	
P.R.	2	W	F	10-18	Paralytic	0	

*Siblings

Seven of the 10 cases were unvaccinated, and only 2 had as many as three doses of vaccine. There were 4 cases in each of the 0-4 and 5-9 age groups. A mass immunization campaign with inactivated vaccine has been carried out.

B. New York State

There were 14 cases of poliomyelitis, including 10 paralytic, reported from New York for the week ending October 28. The 10 paralytic cases were from 9 different counties. Two of the 10 cases occurred in the Syracuse area: one delayed report from Onondaga County with onset in June and an Oneida County case with onset on October 11. This Oneida County case, a 3 year old female, is the only paralytic case that has had onset in the tri-county area during October.

The 79 paralytic cases which have occurred in the tri-county area are presented by age and immunization history in the following table.

PARALYTIC POLIOMYELITIS
TRI-COUNTY AREA

Age Group	Inactivated Vaccine				Total	Percent	Type I Oral Vaccine*		
	OV	1-2V	3V	4+V			Yes	No	Unk
0-4	12	6	10	5	33	41.8	2	3	1
5-9	1	3	5	3	12	15.2	1	0	0
10-19	3	4	1	2	10	12.7	5	1	0
20-29	5	4	3	2	14	17.7	4	6	0
30+	8	0	1	1	10	12.7	4	3	0
Total	29	17	20	13	79	100.0	16	13	1

*Cases with onset on or after August 29 (Oral Vaccine Program).

Poliomyelitis surveillance forms received through October 28 from New York show 26 isolations of type I poliovirus. Twelve of the 26 isolations are from cases in the tri-county area.

C. California

The four paralytic cases reported for the week ending October 28 were from four scattered communities in Los Angeles County. Dr. Henry Renteln, Bureau of Acute Communicable Diseases, California State Department of Public Health, reports that only 26 paralytic cases have occurred in Los Angeles County thus far in 1961 compared to 176 during the corresponding period last year. This represents an 85 percent decrease in reported cases.

In the entire State, the number of paralytic cases has decreased 78 percent through the 43rd week in 1961 as compared to the similar time period in 1960. There have been 77 paralytic cases, including 3 deaths, reported this year as compared to 344 paralytic cases (22 deaths) last year.

Thus far in 1961, type I poliovirus has been isolated in six cases and type III poliovirus in three cases.

3. 1961 POLIOMYELITIS REPORTED TO PSU

Through October 28, there have been 883 cases of poliomyelitis, with onset in 1961, submitted on individual case forms to the Poliomyelitis Surveillance Unit. Of the 883 cases, 633 (72 percent) are paralytic, 214 nonparalytic and 36 unspecified as to paralytic status. These cases are presented on the following page in Table 3 by paralytic status, age group and vaccination history.

Table 3

POLIOMYELITIS CASES BY PARALYTIC STATUS, AGE GROUP
AND VACCINATION HISTORY REPORTED ON PSU FORMS
(Through October 28, 1961)

Age Group	Paralytic						TOTAL	Percent
	Doses of Vaccine							
	0	1	2	3	4+	Unk		
0-4	139	23	19	28	18	16	243	38.4
5-9	38	10	14	30	29	6	127	20.1
10-14	21	5	10	17	21	3	77	12.2
15-19	11	0	6	14	3	2	36	5.7
20-29	44	5	6	13	4	2	74	11.7
30-39	34	5	2	3	3	5	52	8.2
40+	19	0	0	1	1	3	24	3.8
TOTAL	306	48	57	106	79	37	633	100.0
PERCENT DOSES	51.3	8.0	9.6	17.8	13.3	-	100.0	

Age Group	Nonparalytic						TOTAL	Percent
	Doses of Vaccine							
	0	1	2	3	4+	Unk		
0-4	16	2	7	8	4	3	40	18.8
5-9	10	0	5	17	23	4	59	27.7
10-14	3	3	6	14	14	6	46	21.6
15-19	2	0	4	5	4	1	16	7.5
20-29	6	0	4	11	9	4	34	16.0
30-39	10	0	0	4	1	1	16	7.5
40+	0	0	0	0	2	0	2	0.9
TOTAL	47	5	26	59	57	19	213	100.0
PERCENT DOSES	24.2	2.6	13.4	30.4	29.4	-	100.0	

4. ROUTINE POLIOMYELITIS SURVEILLANCE

A. Cases with Onset within 30 Days of Vaccination (Inactivated)

Two cases of nonparalytic poliomyelitis with onset within 30 days of receiving inactivated vaccine (IPV) have been received by the Poliomyelitis Surveillance Unit during the past week ending October 28. The two cases, both from West Virginia, bring the 1961 total of under-30-day cases (IPV) to 19, of which 13 are paralytic (two correlated).

B. Cases with Onset within 30 Days of Vaccination (Oral)

One case of nonparalytic poliomyelitis with onset within 30 days of receiving oral vaccine (OPV) has been reported to the Poliomyelitis Surveillance Unit during the past week ending October 28. This case was fed type I oral vaccine during the mass immunization program in Syracuse, New York. This brings the 1961 total of under-30-day cases (OPV) to 28, of which 22 are paralytic.

Age Group	Paralytic	Nonparalytic	Total
0-4	13	2	15
5-9	1	0	1
10-14	0	0	0
15-19	0	0	0
20-24	0	0	0
25-29	0	0	0
30-34	0	0	0
35-39	0	0	0
40-44	0	0	0
45-49	0	0	0
50-54	0	0	0
55-59	0	0	0
60-64	0	0	0
65-69	0	0	0
70-74	0	0	0
75-79	0	0	0
80-84	0	0	0
85-89	0	0	0
90-94	0	0	0
95-99	0	0	0
100+	0	0	0
Total	13	2	15

Age Group	Paralytic	Nonparalytic	Total
0-4	22	6	28
5-9	0	0	0
10-14	0	0	0
15-19	0	0	0
20-24	0	0	0
25-29	0	0	0
30-34	0	0	0
35-39	0	0	0
40-44	0	0	0
45-49	0	0	0
50-54	0	0	0
55-59	0	0	0
60-64	0	0	0
65-69	0	0	0
70-74	0	0	0
75-79	0	0	0
80-84	0	0	0
85-89	0	0	0
90-94	0	0	0
95-99	0	0	0
100+	0	0	0
Total	22	6	28

(This report was prepared by Michael J. Regan, M.D., Chief, and Mr. Leo Morris, Statistician, of the Poliomyelitis and Polio-like Diseases Surveillance Unit, with the assistance of Statistics Section, CDC.)

5. ENTEROVIRUS SURVEILLANCE

A. Epidemiologic Reports

1. Tennessee

An outbreak of febrile illness among members of a high school football team has been reported by Dr. Nobel Guthrie, Assistant Director, Memphis-Shelby County Health Department, through Dr. Cecil B. Tucker, Epidemiologist, Tennessee Department of Public Health.

Twenty-eight cases of illness were recognized. Symptoms included nausea, vomiting, chills, fever, headache, soreness of the eyes, and stiff neck. The first case had onset on August 12 and the last case on August 25 with a peak occurring on August 17. The illness lasted from two to fourteen days with the majority of patients ill seven to ten days.

The following table presents an analysis of signs and symptoms.

<u>Sign or Symptom</u>	<u>Number of Cases</u>	<u>Percent</u>
Fever	28	100
Headache	26	93
Vomiting	21	75
Chills	20	71
Soreness of Eyes	11	39
Stiff Neck	8	29
Transitory Muscle Weakness	7	25
Transitory Skin Rash	1	4

The soreness of eyes was described as aching in the eyeball and not as due to conjunctivitis. Muscle weakness was questionable. Cerebrospinal fluid examination in two instances showed pleocytosis and increased protein.

In addition to these twenty-eight cases, three secondary cases have been recognized among household contacts of team members. Coxsackie B-5 has been isolated from the stools of five patients. Further laboratory studies are in progress.

2. Connecticut

Dr. G.-D. Hsiung, Director, Yale University Virus Diagnostic Laboratory, has reported eleven additional Coxsackie B-4 and two B-5 isolates from thirteen patients seen at the Yale-New Haven Medical Center. Clinical findings included aseptic meningitis in five cases; other diagnoses made were viral pneumonia, pharyngitis, and encephalitis. Involved chiefly were preschool age children and infants.

3. Pennsylvania

Dr. I. F. Gratch, Epidemiologist, Pennsylvania Department of Health, has also sent a clinical follow-up on 44 patients and 6 contacts from whom Coxsackie B-5 isolates have been obtained over the past two months. Findings included aseptic meningitis in 22 cases, pleurodynia in 4 cases, encephalitis in 3 cases, and other obscure febrile illnesses in the remaining cases. An apparent concentration in and around Philadelphia may reflect the population concentration there, but epidemiologic investigation is in progress. No local case clusters have been noted.

B. Nationwide Laboratory Reporting

A total of 770 non-polio enterovirus isolations has been reported to the Poliomyelitis Surveillance Unit thus far in 1961. The predominant type continues to be Coxsackie B-5 which account for 54 percent of the total. The table below presents non-polio enterovirus isolates obtained thus far in 1961 by State.

Non-Polio Enterovirus Isolations from 1961 Specimens

State	ECHO*	Coxsackie				Other and Unsp.	Total	Reported By
		B-2	B-4	B-5				
Alabama	1	-	-	2	3	6	W. Smith & T. Hosty	
Arkansas	-	1	-	-	-	1	CDC Virus Reference Unit	
California	6	5	1	6	2	20	E. Lennette	
Colorado	3	-	-	2	-	5	C. Mollohan	
Connecticut	1	1	30	13	1	46	G. D. Hsiung, G. Borman & J. Hart	
D.C.	-	-	-	-	1	1	W. Wooldridge	
Florida	1	-	-	-	-	1	J. Bond	
Georgia	-	-	4	-	-	4	W. Murphy	
Hawaii	4	-	1	-	8	13	K. Wilcox	
Idaho	-	-	-	3	-	3	D. Brack	
Illinois	25	3	-	36	3	67	H. Shaughnessy	
Iowa	-	-	-	2	-	2	R. Herren & T. Chin	
Kansas	4	-	-	24	2	30	C. Hunter	
Kentucky	1	-	-	-	-	1	CDC Virus Reference Unit	
Louisiana	1	-	2	-	-	3	J. Bruce & G. Hauser	
Maryland	2	-	1	22	-	25	C. Perry & C. Silverman	
Mass.	1	2	4	29	10	46	R. MacCready, T. Chang & J. Enders	
Michigan	-	-	1	1	1	3	G. Agate	
Minnesota	53	13	2	41	2	111	H. Bauer	
Miss.	-	-	-	-	1	1	CDC Virus Reference Unit	

(Continued on next page)

Non-Polio Enterovirus Isolations from 1961 Specimens (Continued)

State	ECHO*	Coxsackie				Total	Reported By
		B-2	B-4	B-5	Other and Unsp.		
Montana	-	-	-	7	-	7	M. Soules
N.H.	-	1	-	-	-	1	R. Miliner
N.J.	3	-	10	44	-	57	M. Goldfield & W. Dougherty
N.Y.	2	-	4	8	2	16	R. Albrecht
N.C.	5	-	2	-	1	8	L. Maddry
Ohio	6	-	2	14	9	31	L. Ey
Oklahoma	-	-	-	4	1	5	F. Hassler
Oregon	-	-	-	6	-	6	G. Brandon & M. Skinner
Pennsylvania	-	-	1	84	-	85	K. Humeler & I. Gratch
Rhode Island	-	-	-	6	-	6	CDC Virus Reference Unit
S. C.	-	-	2	-	-	2	G. McDaniel
Tennessee	-	2	5	11	1	19	G. Cameron & C. Tucker
Texas	18	10	-	3	1	32	G. Irons
Utah	1	1	-	16	-	17	R. Fraser & A. Jenkins
Virginia	-	-	-	27	-	27	W. Skinner
Washington	-	55	-	7	-	62	K. Berquist & W. Giedt
Wisconsin	<u>5</u>	<u>-</u>	<u>-</u>	<u>7</u>	<u>1</u>	<u>13</u>	A. Evans
TOTAL	143	93	72	425	50	783	

* Specific types include seventeen ECHO 9 in Texas, two in California, and one each in New Jersey, Utah, Ohio, and Louisiana; three ECHO 19 in Colorado, two in Kansas, and one in California; 47 ECHO 11 in Minnesota; five ECHO 10 in Illinois; four ECHO 1 in North Carolina. Other types reported are ECHO 3, 5, 7, 11, 21, 22, and 25.

6. ORAL POLIOVIRUS VACCINE PROGRAMS

Oral poliovaccine has been administered in a number of areas throughout the United States during the past two years. Many requests have been received by the Poliomyelitis Surveillance Unit for a listing of these areas.

The following table lists the areas and the approximate amount of vaccine administered in each. It is believed that all field trials and immunization programs are listed in which more than 5,000 doses of vaccine were given. The Poliomyelitis Surveillance Unit would welcome any revisions or additions to this listing.

ESTIMATED ORAL POLIO VACCINE ADMINISTERED - USA

Area	Year	Types*			Trivalent**
		I	II	III	
Middletown, Connecticut	1961	10,000	10,000	10,000	--
Metropolitan Atlanta, Georgia	1961	--	--	300,000	--
Allegheny County, Maryland	1961	70,000	--	--	--
Monroe County, New York	1960	114,000	102,000	111,000	--
Metropolitan Syracuse, New York	1961	400,000	--	--	--
Cincinnati, Ohio	1960	180,000	175,000	175,000	--
Harrisburg, Pennsylvania	1961	90,000	105,000	105,000	--
Newberry County, So. Carolina	1961	--	--	22,000	--
Dade County, Florida	1960	--	--	--	411,000
Tompkins County, New York	1960	--	--	--	30,000
Bloomington, Minnesota	1960	--	--	--	8,000
Duluth, Minnesota	1960	--	--	--	22,000
Minneapolis, Minnesota	1960	--	--	--	31,000
St. Louis Park, Minnesota	1960	--	--	--	15,000
St. Paul, Minnesota	1960	--	--	--	17,000
TOTALS		864,000	392,000	723,000	534,000
Trivalent Administered		<u>534,000</u>	<u>534,000</u>	<u>534,000</u>	
Total of each type administered (including trivalent vaccine)		<u>1,398,000</u>	<u>926,000</u>	<u>1,257,000</u>	

* Sabin strains

** Cox strains

In addition, studies of infants were carried out in New Haven, Conn.; Houston, Texas; Cleveland, Ohio; Nashville, Tenn.; New York City; New Orleans, La.; Brookline, Mass.; Atlanta, Ga.; Tampa, Fla. All involved less than 500 individuals.

Number of Reported Cases

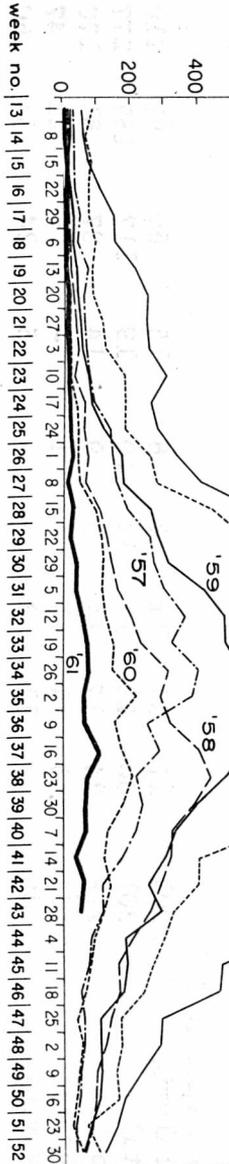
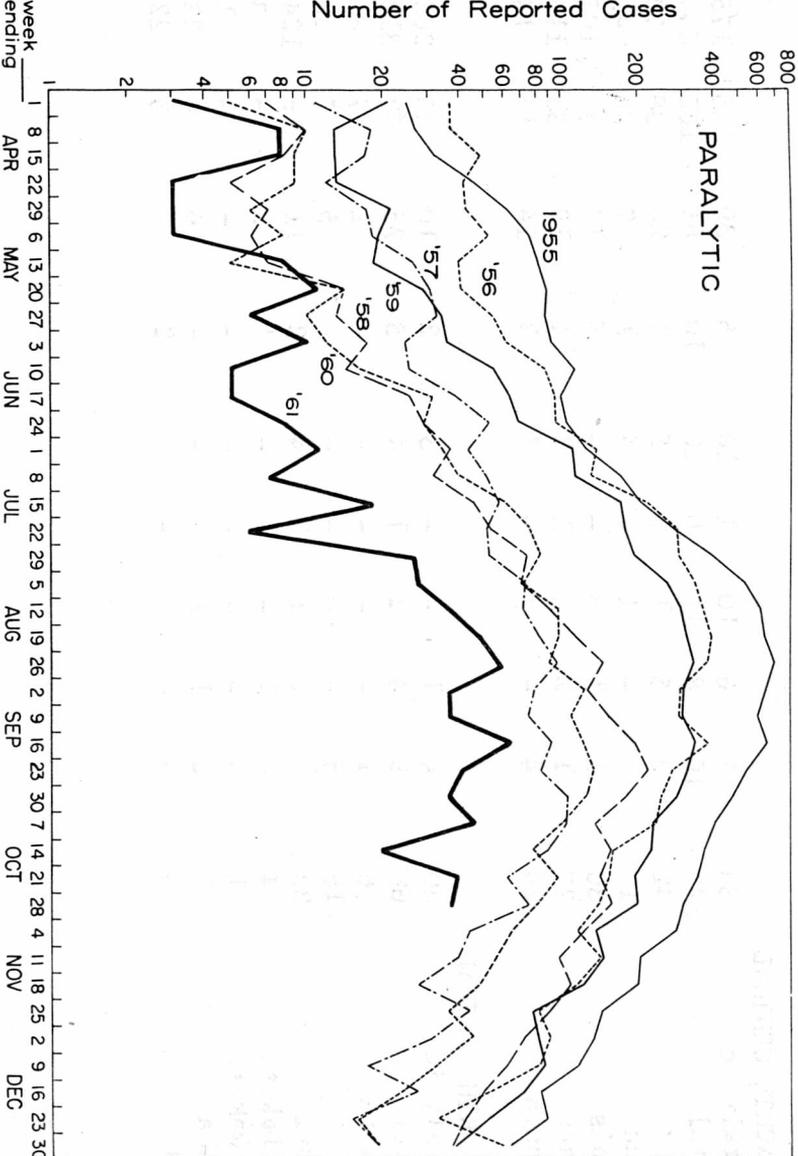


FIGURE 1

**CURRENT U.S. POLIO INCIDENCE
COMPARED WITH YEARS 1955 - 1960, April - December, by week**

PROVISIONAL DATA SUPPLIED BY NATIONAL OFFICE OF VITAL STATISTICS
AND COMMUNICABLE DISEASE CENTER

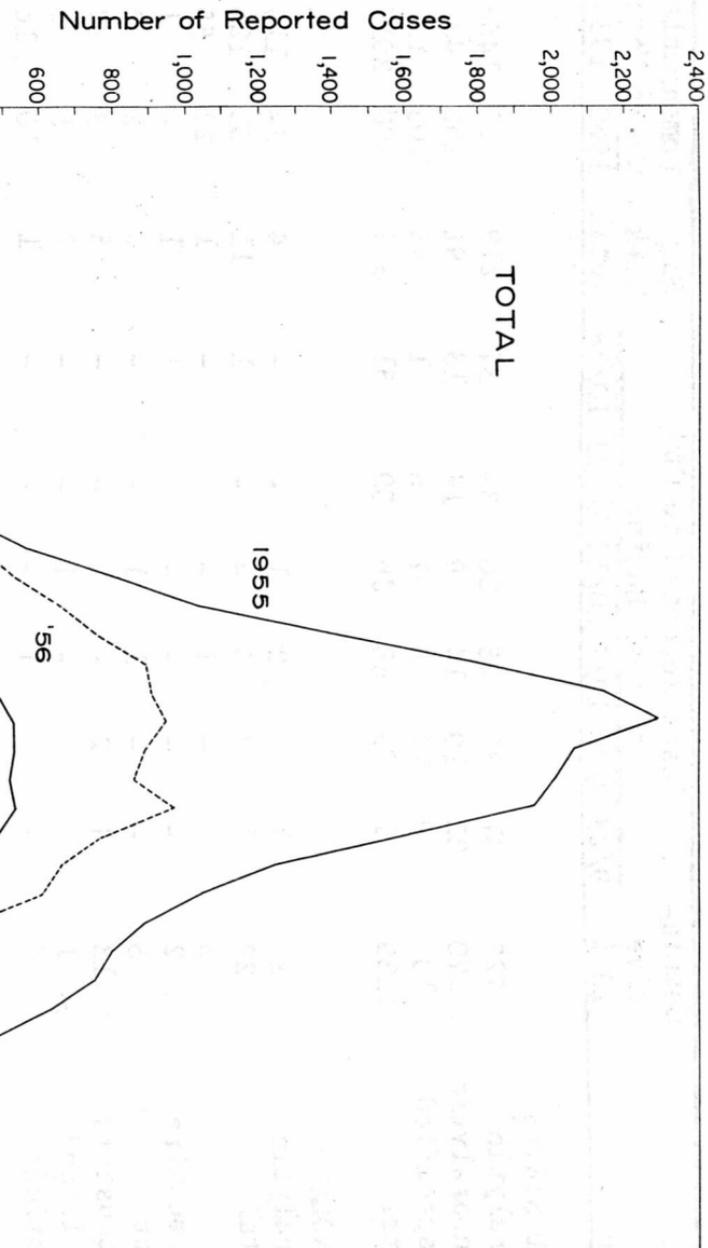


Table I

TREND OF 1961 POLIOMYELITIS INCIDENCE

State and Region	Cumulative 1961	Cases Reported to CDC For Week Ending						Six Week Total	Comparable Six Weeks Totals in			
		9/23	9/30	10/7	10/14	10/21	10/28		1960	1959	1958	
UNITED STATES												
Paralytic	727	41	36	45	20	39	37	218	620	1453	999	
Nonparalytic	270	22	19	14	9	14	13	91	162	433	699	
Unspecified	132	8	14	9	7	6	1	45	108	131	300	
Total	1129	71	69	68	36	59	51	354	890	2017	1998	
NEW ENGLAND												
Paralytic	19	1	-	2	1	-	-	4	34	114	20	
Total	29	1	2	3	4	-	1	11	42	125	24	
Maine	3	-	-	1	-	-	-	1	22	55	2	
New Hampshire	2	-	-	-	-	-	1	1	-	1	-	
Vermont	5	-	-	1	1	-	-	2	2	3	2	
Massachusetts	13	1	2	-	2	-	-	5	3	44	7	
Rhode Island	1	-	-	-	1	-	-	1	5	6	-	
Connecticut	5	-	-	1	-	-	-	1	10	16	13	
MIDDLE ATLANTIC												
Paralytic	201	17	11	11	7	8	15	69	97	210	123	
Total	301	30	29	17	12	10	19	117	157	277	240	
New York	218	24	17	14	9	9	14	87	81	170	98	
New Jersey	34	3	1	1	-	1	-	6	22	47	104	
Pennsylvania	49	3	11	2	3	-	5	24	54	60	38	
EAST NORTH CENTRAL												
Paralytic	88	7	6	10	1	10	5	39	116	175	335	
Total	145	10	8	11	6	16	10	61	165	344	938	
Ohio	42	3	5	1	5	5	1	20	38	70	174	
Indiana	17	1	-	1	-	4	1	7	44	41	43	
Illinois	30	1	1	3	-	-	5	10	34	105	93	
Michigan	27	1	2	3	1	2	1	10	33	114	607	
Wisconsin	29	4	-	3	-	5	2	14	16	14	21	
WEST NORTH CENTRAL												
Paralytic	30	4	1	-	-	3	2	10	35	203	78	
Total	68	9	4	2	1	4	5	25	52	316	142	
Minnesota	6	1	-	-	-	-	-	1	17	81	12	
Iowa	18	5	-	-	-	-	-	5	7	62	13	
Missouri	22	1	2	1	1	4	2	11	16	124	75	
North Dakota	4	-	1	-	-	-	1	2	5	3	14	
South Dakota	1	-	-	-	-	-	-	-	-	1	2	
Nebraska	8	2	1	1	-	-	-	4	4	23	14	
Kansas	9	-	-	-	-	-	2	2	3	22	12	

Table I (Continued)

State and Region	Cumula- tive 1961	Cases Reported to CDC For Week Ending						Six Week Total	Comparable Six Weeks Totals in		
		9/23	9/30	10/7	10/14	10/21	10/28		1960	1959	1958
SOUTH ATLANTIC											
Paralytic	142	2	7	16	3	7	7	42	177	259	152
Total	192	5	7	19	4	14	7	56	197	303	234
Delaware	2	-	-	-	-	-	-	-	-	2	7
Maryland	31	-	3	1	-	1	3	8	99	23	10
D.C.	3	-	1	-	1	-	-	2	5	-	-
Virginia	10	1	1	-	-	-	-	2	19	67	47
West Virginia	30	3	1	1	1	5	1	12	21	50	80
North Carolina	21	1	-	3	-	4	-	8	16	84	26
South Carolina	33	-	-	14	2	1	1	18	20	21	6
Georgia	30	-	1	-	-	-	2	3	5	33	17
Florida	32	-	-	-	-	3	-	3	12	23	41
EAST SOUTH CENTRAL											
Paralytic	43	2	1	-	2	-	1	6	33	156	59
Total	75	4	4	3	3	-	1	15	110	195	98
Kentucky	27	-	2	3	1	-	-	6	68	55	19
Tennessee	17	3	1	-	-	-	-	4	21	88	32
Alabama	9	-	-	-	-	-	-	-	10	32	10
Mississippi	22	1	1	-	2	-	1	5	11	20	37
WEST SOUTH CENTRAL											
Paralytic	75	3	4	4	2	5	1	19	44	116	125
Total	140	5	9	8	2	5	2	31	63	201	171
Arkansas	18	4	-	-	1	-	1	6	12	69	11
Louisiana	49	-	4	4	1	4	1	14	9	21	25
Oklahoma	4	-	-	1	-	-	-	1	4	23	9
Texas	69	1	5	3	-	1	-	10	38	88	126
MOUNTAIN											
Paralytic	25	-	1	-	-	1	-	2	14	20	20
Total	44	1	1	-	-	2	-	4	20	34	39
Montana	4	-	-	-	-	1	-	1	7	3	8
Idaho	14	1	-	-	-	-	-	1	3	1	2
Wyoming	-	-	-	-	-	-	-	-	1	-	2
Colorado	7	-	-	-	-	1	-	1	6	7	6
New Mexico	3	-	-	-	-	-	-	-	1	8	5
Arizona	8	-	1	-	-	-	-	1	-	13	11
Utah	8	-	-	-	-	-	-	-	2	1	3
Nevada	-	-	-	-	-	-	-	-	-	1	2
PACIFIC											
Paralytic	104	5	5	2	4	5	6	27	70	200	87
Total	135	6	5	5	4	8	6	34	84	222	112
Washington	23	1	-	2	-	1	2	6	10	68	14
Oregon	16	1	1	-	-	2	-	4	7	48	9
California	92	4	3	3	4	5	4	23	67	98	78
Alaska	-	-	-	-	-	-	-	-	-	7	1
Hawaii	4	-	1	-	-	-	-	1	-	1	10
TERRITORY											
Puerto Rico	6	-	-	-	-	-	-	-	48	1	1

U.S. Department of Health, Education, and Welfare

Public Health Service

Bureau of State Services

COMMUNICABLE DISEASE CENTER
Atlanta 22, Ga.

POLIOMYELITIS IMMUNIZATION SURVEY OF HARRISBURG, PENNSYLVANIA
August, 1961

Conducted by the Pennsylvania Department of Health

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This survey was carried out in Harrisburg in August, 1961 in order to determine participation in the Sabin Oral Vaccine program of April-June, 1961 according to various population sub-groups of the city.

The city as a whole was included in an area-probability sample (Table 1) of approximately one housing unit in 40. For this purpose, (with stratification by Census Tract) a sample of 60 blocks was selected. A second block was chosen at random from blocks contiguous to each of the 60 blocks first selected. As the city includes approximately 1200 blocks this led to a sample of one block in ten. In the field work one-fourth of the dwelling units on each block was interviewed, proceeding systematically around the block from a random starting point and interviewing every fourth housing unit.

Separate samples were taken in each of two (Table 1) large housing project areas. For these samples the dwelling units were listed and a random selection of one out of each successive group of six houses was made in the southeast housing project area and a random selection of one out of each successive three houses in the northwest housing project area. As shown in Table 1 interviews were completed at 593 housing units in the city at large, 124 units in the southeast housing project area and 112 units in the northwest housing project area, a total of 829 units in all.

Table 2 shows that the total number of units visited was 930. Of these, 39 were vacant, leaving 891 units and among these 62 interviews were not completed. These 62 were not completed because in 25 units the family was on vacation, 6 refused to provide the information requested and at 31 housing units where no

one was at home on the first visit to the household, no one could be reached by telephone or field call-back during the week of the survey. The 829 interviews obtained comprised 93 per cent of the occupied units. Of these 71.8 per cent were completed on first visit and the remainder by call-back.

The total number of persons in the sample population was 2869 as shown in Table 3. Of these 6 persons were of unknown age and 15 were under 3 months of age. These 21 persons were not included in the subsequent analysis, leaving a total study population of 2848 persons, 1881 in the city at large and 967 in the housing projects.

The socioeconomic classification of the study population is shown in Table 4. A preliminary classification was made by use of limited preliminary 1960 census tract data as a guide to design of the survey, but final classification was based on information on education and occupation collected for each household head during the survey. From these data an index of socioeconomic position (Hollingshead 1957) was calculated and average values for each census tract were used to obtain the final classification shown in Table 4, and the attached maps. Average values of the index were also calculated for the two housing projects. These values indicate that the southeast project fell in the lower-middle class range, while the northwest project fell in the same range as the lower socioeconomic areas of the city as a whole.

The age distribution of the sample populations is shown in Table 5. In the city as a whole the differences by socioeconomic group are not striking although family size and population of children under 18 are both somewhat larger in the lower socioeconomic group. The housing projects differ markedly in

consisting of a younger population with larger families. The latter differences are of importance in interpretation of the results presented on response to the Sabin program presented in Tables 6 and 7.

Table 6 provides estimates of the total number of persons participating in the program by socioeconomic group in the city and for the housing projects. The estimated totals were calculated by application of the sampling ratios given in Table 6 to appropriate marginal totals in Tables 9A and 9B. In these Tables persons with unknown number of Salk or Sabin doses are counted as receiving 1-2 doses. Persons with unknown Salk or Sabin status are counted as receiving none. A tabulation of the unknowns by area and age is given in Table 10.

The degree of participation, as measured (Table 6) by the per cent of each population receiving the full series of 3 Sabin doses shows marked correlation with socioeconomic level, ranging from 33 per cent for the upper socioeconomic group down to 16 per cent for the lower socioeconomic group. A similar association between socioeconomic level (Table 4) and participation is evident in comparison of response in the two housing project areas.

Table 7 presents overall response to the Sabin program in terms of average number of doses per person. In Part A of this Table a clear association is shown with socioeconomic level. The higher values for the housing projects reflect the younger age composition of these populations as shown in Table 5.

The average number of doses per person for the entire Harrisburg population was estimated as 0.95 and may be compared with the average of 0.92, which is calculated for the entire area served by the program in Part B of Table 7.

This crude comparison suggests that the gross response in Harrisburg was not greatly different from the response in the greater Harrisburg area.

Another aspect of response to the program is shown in Tables 8A, 8B and Figures 1 and 2 which indicate the extent of continued participation. It may be seen (Figure 1 and Table 8B) that not only was initial participation larger in the upper socioeconomic groups but that continued participation was better. In the upper socioeconomic group 33.1 per cent came to all three clinics. In contrast, in the lower socioeconomic group 25.0 per cent responded in April but only 16.0 per cent came to all three clinics. The middle socioeconomic group responded somewhat less than the upper group but much better than the lower group.

In the housing projects a similar pattern of behavior occurred. In the southeast project initial response was 36.6 per cent with 32.9 per cent coming to all three clinics. In the northwest project initial response was 28.3 per cent but only 17.0 per cent (Table 8B) continued through all three clinics. Also in comparing Figure 1 with Figure 2 it is worth noting that in the housing projects a greater proportion (8-9 per cent) came for the first time in May (second clinic) than in the city at large in which only 3-4 per cent came in May for the first time.

Figure 3, calculated from the data presented in Table 9 shows response to the program by area and age-group in relation to previous Salk vaccine status. In the under 6 age-group initial Salk and final Salk-Sabin levels in the upper socioeconomic group were the highest of any population group. However,

a majority of these who completed the full Sabin series had 3 or more Salk doses to start with. In the lower socioeconomic the same was true but in this group the increase in total percentage with either complete Salk, complete Sabin, or both, was only about one-half as great. In the end, 25 per cent had received neither vaccine; and less than 50 per cent had received a full course of either or both vaccines. Twenty-nine per cent had partial protection with some Salk and/or some Sabin vaccine.

The school age group, 6-17 showed a greater percentage response but in the upper and middle socioeconomic groups a large proportion had previously received 3 or more doses of Salk vaccine. The net increase was small, approximately 4-5 per cent. However in this age group the response of the lower socioeconomic group was better and resulted in net increase of approximately 13 per cent protected by a full course of either one or both vaccines.

The young adult group age 18-24 showed socioeconomic differences in response comparable to those in younger age groups. However the differences in final protection levels were greater. In the upper group over 80 per cent were protected by either or both vaccines at the end of the campaign while in the lower group the corresponding figure was less than 40 per cent.

In the adult age group 25-39 the increased protection offered by the Sabin campaign exceeded that found in any of the younger age groups although final levels of protection by either or both vaccines ranged from approximately 35 to 65 per cent. Among those 40 years and over the campaign doubled previous levels of protection but remained low in the range of 10 to 20 per cent.

In the housing projects, the differences between projects in response by age which may be observed in Figure 4 were generally similar to the differences between socioeconomic groups which have been described for the city at large.

The upper and middle socioeconomic groups received 3 or more doses of S-19 vaccine. The first dose was usually given approximately 13 per cent protected by a full course of either one or both vaccines. However, in this age group the response of the lower socioeconomic group was better and resulted in an increase of approximately 13 per cent protected by a full course of either one or both vaccines.

The young adult age group (15-24) showed socioeconomic differences in response comparable to those in younger age groups. However, the differences in their protection levels were greater. In the upper group over 80 per cent were protected by either or both vaccines at the end of the campaign while in the lower group the corresponding figure was less than 40 per cent.

In the shift age group (25-34) the increased protection offered by the campaign exceeded that found in any of the younger age groups although the level of protection by either or both vaccines ranged from approximately 10 per cent. Among those 40 years and over the campaign doubled previous protection but remained low in the range of 10 to 20 per cent.

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Table 1. Sample Size and Distribution of Interviews

A. Scheduled Blocks in City at Large (Sample ratio 1/10)		120	
Occupied blocks		117	
Vacant blocks		3	
B. Number of Dwelling Units Visited	<u>Total Visited</u>	<u>Interview Not Completed</u>	<u>Interview Completed</u>
City at Large (within block S.R. 1/4)	676	83	593
Housing Projects			
Southeast Area (C.T. 14 pt.)			
Total (Sample ratio 1/6)	130	6	124
J.A.F. Hall Manor	91	4	87
G.A. Hoverter Homes	39	2	37
Northwest Area (C.T. 11pt.)			
Total (Sample ratio 1/3)	124	12	112
W.H. Day Homes	75	6	69
M.W. Smith Homes	26	2	24
Hillside Village	23	4	19
	Total	930	101
	Vacant units	39	
	Occupants not interviewed	62	

Table 2. Number of Housing Units Visited with Outcome

Total Units Visited				930
Vacant units (4.2%)				39
Occupied units (95.8%)				891
			<u>Occupied Units</u>	
			<u>Percent</u>	<u>Number</u>
Completed interviews	(100.0%)	93.0	829	
First visit	(71.8%)		595	
Telephone revisit, one or more	(19.4%)		161	
Field revisit, one or more	(8.8%)		73	
Interviews not completed		7.0	62	
On vacation		2.8	25	
Unsuccessful revisits		3.5	31	
Refusals		0.7	6	

Table 3. Number of Persons in Sample Population

Sample Population	Number of Completed Interviews	Number of Persons			
		All Ages	Under 3 Months of Age	Age Unknown	Ages 3 Months and Over with Known Age
City at Large	593	1 891	5	5	1 881*
Housing Units	236	978	10	1	967*
Total	829	2 869	15	6	2 848*

*Persons Included in Subsequent Analytical Tables.

Table 4. Socioeconomic Classification

Final Socioeconomic Classification	Census Tracts	Total 1960 Population	Preliminary Socioeconomic Classification				Mean Hollingshead Index*
			Upper	Middle	Lower	Total	
1. Upper	2,8,9,14 pt.,17	20 831	446	56	-	502	35 - 47
2. Middle	4,5,7,11 pt.,13,15,16	35 863	149	677	42	868	49 - 53
3. Lower	1,3,6,10,12	18 562	13	23	475	511	60 - 66
Sub-Total			608	756	517	1 881	
4. Southeast H.P.	14 pt.	2 885	-	-	-	486	55
5. Northwest H.P.	11 pt.	1 556	-	-	-	481	64
Total		79 697	-	-	-	2 848	-

* The Hollingshead Index has a range of from 11 (upper) to 77 (lower).

Table 5. Composition of Sample by Age

A. Number of Persons

Area	No. of Housing Units	Age Distribution					
		Total	3Mo.-5Yrs.	6-17	18-24	25-39	40 and Over
City at Large							
Upper SE	159	502	65	104	39	101	193
Middle SE	287	868	111	179	81	145	352
Lower SE	147	511	55	139	46	85	186
Total	593	1 881	231	422	166	331	731
Housing Projects							
Southeast	124	486	117	146	50	109	64
Northwest	112	481	124	169	43	91	54

B. Ratios and Percentages

Area	Persons per H.U.	Percentage Composition by Age					
		Total	3Mo.-5Yrs.	6-17	18-24	25-39	40 and Over
City at Large							
Upper SE	3.16	100	12.9	20.7	7.8	20.1	38.4
Middle SE	3.02	100	12.8	20.6	9.3	16.7	40.6
Lower SE	3.48	100	10.8	27.2	9.0	16.6	36.4
Total	3.17	100	12.3	22.4	8.8	17.6	38.9
Housing Projects							
Southeast	3.92	100	24.1	30.0	10.3	22.4	13.2
Northwest	4.29	100	25.8	35.1	8.9	18.9	11.2

Table 6. Estimated Number of Persons in Harrisburg Receiving Sabin Vaccine*

Area	Sampling Ratio	Number of Sabin Doses			Total Persons	Percent Receiving:		
		0	1-2	3		0	1-2	3
City at Large								
Upper	41.50	12 699	1 248	6 889	20 836	60.9	6.0	33.1
Middle	41.32	22 891	2 892	10 083	35 866	63.8	8.1	28.1
Lower	36.32	13 220	2 360	2 980	18 560	71.2	12.7	16.1
Housing Projects								
Southeast	5.94	1 555	382	951	2 888	53.8	13.2	32.9
Northwest	3.23	948	332	271	1 551	61.1	21.4	17.5
Total	-	51 313	7 214	21 174	79 701	64.4	9.1	26.6

* Expanded totals based on exact sampling ratios as given. These are the ratios of the total 1960 populations (Table 4) to the total number of persons (Table 3) included in the analysis. Persons with unknown Sabin history were counted as receiving 0 doses and those with unknown number as receiving 1-2 doses. Total populations in this table differ slightly from the exact census totals given in Table 4 because of rounding errors.

Table 7. Estimated Number of Doses of Sabin Vaccine Administered

A. Harrisburg

Population Group	Sampling Ratio	Number of Doses		Total Population	Doses per Person
		Sample Number	Estimated Total		
City at Large					
Upper	41.50	551	22 866	20 831	1.10
Middle	41.32	853	35 246	35 863	0.98
Lower	36.32	346	12 567	18 562	0.68
Housing Projects					
Southeast	5.94	590	3 505	2 885	1.21
Northwest	3.23	426	1 376	1 556	0.88
Total	-	-	75 560	79 697	0.95

B. Program Report for Entire Area Served

Estimated Total Population of Area ^{1/}328 400
 Total Doses Distributed ^{2/}301 000
 Average Doses Per Person..... 0.92

^{1/} Pennsylvania Department of Health Executive Office Release "Basic Information on the 1961 Sabin Program", May 1, 1961.

^{2/} Fletcher, Thomas F. and Procopio, Frank. 1961 Organized Medicine and Polio Control with Sabin Vaccine. Brochure distributed at Scientific Exhibit of American Medical Association, June 25-30, 1961., N.Y.C.

Table 8. Analysis of Continued Participation in the Sabin Campaign

A. Number of Persons in Sample

<u>1/</u> Sabin Received In:			City at Large			Housing Projects	
April	May	June	Upper	Middle	Lower	Southeast	Northwest
*	*	*	166	244	82	160	82
*	*	-	5	28	16	8	26
*	-	*	-	4	2	6	14
*	-	-	6	10	28	4	14
-	*	*	18	21	17	35	38
-	*	-	1	5	2	8	6
-	-	*	-	-	-	-	4
-	-	-	306	556	354	265	297
Total			502	868	511	486	481

*...Received Vaccine -...Did not Receive Vaccine

1/ Persons with unknown status counted as receiving none; with unknown number as receiving 1-2 doses.

B. Percentage Distribution 2/

Received Vaccine In:	City at Large			Housing Projects	
	Upper	Middle	Lower	Southeast	Northwest
April	35.3	32.9	25.0	36.6	28.3
April - May	34.1	31.3	19.2	34.6	22.5
April - May - June	33.1	28.1	16.0	32.9	17.0
May 1st time	3.8	3.0	3.7	8.8	9.1
May - June	3.6	2.4	3.3	7.2	7.9
April - June	0	0.5	0.4	1.2	2.9
April only	1.2	1.2	5.5	0.8	2.9
May only	0.2	0.6	0.4	1.6	1.2
June only	0	0	0	0	0.8
Never	61.0	64.1	71.2	54.5	61.7

2/ Small differences between this Table and the percentages given in Table 6 result from rounding errors in the expanded totals of Table 6.

Table 9. Classification of Sample Population
by Area, Age and Salk-Sabin Status*

A. City at Large

Age Group	Salk Doses	Sabin Doses by Socioeconomic Area											
		Upper				Middle				Lower			
		0	1-2	3	Total	0	1-2	3	Total	0	1-2	3	Total
Under 6	0	5	1	3	9	18	3	7	28	14	4	2	20
	1-2	6	1	7	14	10	3	7	20	8	4	2	14
	3+	18	3	21	42	27	9	27	63	10	5	6	21
	Total	29	5	31	65	55	15	41	111	32	13	10	55
6-17	0	4	4	4	12	17	7	5	29	22	5	15	42
	1-2	9	1	-	10	3	7	4	14	16	4	3	23
	3+	28	-	54	82	48	11	77	136	35	20	19	74
	Total	41	5	58	104	68	25	86	179	73	29	37	139
18-24	0	4	-	1	5	24	2	7	33	23	5	-	28
	1-2	3	-	1	4	3	-	5	8	1	-	1	2
	3+	19	4	7	30	18	4	18	40	10	1	5	16
	Total	26	4	9	39	45	6	30	81	34	6	6	46
25-39	0	26	2	11	39	52	4	19	75	41	7	11	59
	1-2	6	2	7	15	13	-	9	22	6	-	-	6
	3+	15	5	27	47	19	5	24	48	12	2	6	20
	Total	47	9	45	101	84	9	52	145	59	9	17	85
40 and Over	0	150	5	13	168	282	10	23	315	161	7	10	178
	1-2	5	1	1	7	10	1	3	14	2	-	-	2
	3+	8	1	9	18	10	4	9	23	3	1	2	6
	Total	163	7	23	193	302	15	35	352	166	8	12	186
All Ages	0	189	12	32	233	393	26	61	480	261	28	38	327
	1-2	29	5	16	50	39	11	28	78	33	8	6	47
	3+	88	13	118	219	122	33	155	310	70	29	38	137
	Total	306	30	166	502	554	70	244	868	364	65	82	511

*Persons with unknown Salk or Sabin status are included in the 0 groups.
Persons with unknown number of Salk or Sabin doses are counted as receiving 1-2 doses.

Small differences between this table and the percentages given in Table 6 result from rounding errors in the extended totals of Table 6.

Table 9. Classification of Sample Population by Area, Age and Salk-Sabin Status*

B. Housing Projects

Age Group	Salk Doses	Sabin Doses by Housing Project							
		Southeast				Northwest			
		0	1-2	3	Total	0	1-2	3	Total
Under 6	0	10	1	6	17	18	2	3	23
	1-2	10	4	13	27	27	6	5	38
	3+	38	14	21	73	35	20	8	63
	Total	58	19	40	117	80	28	16	124
6-17	0	11	-	2	13	19	5	7	31
	1-2	5	1	11	17	15	12	15	42
	3+	53	21	42	116	42	32	22	96
	Total	69	22	55	146	76	49	44	169
18-24	0	9	1	7	17	13	5	-	18
	1-2	3	1	5	9	6	-	4	10
	3+	12	3	9	24	14	1	-	15
	Total	24	5	21	50	33	6	4	43
25-39	0	28	4	18	50	34	7	7	48
	1-2	12	3	5	20	11	3	2	16
	3+	23	7	9	39	14	7	6	27
	Total	63	14	32	109	59	17	15	91
40 and Over	0	42	2	4	48	40	1	4	45
	1-2	1	1	1	3	2	-	-	2
	3+	5	1	7	13	4	2	1	7
	Total	48	4	12	64	46	3	5	54
All Ages	0	100	8	37	145	124	20	21	165
	1-2	31	10	35	76	61	21	26	108
	3+	131	46	88	265	109	62	37	208
	Total	262	64	160	486	294	103	84	481

*Persons with unknown Salk or Sabin status are included in the 0 groups. Persons with unknown number of Salk or Sabin doses are counted as receiving 1-2 doses.

Table 10. Distribution of Persons with Unknown Sabin or Salk Status
By Age and Study Area*

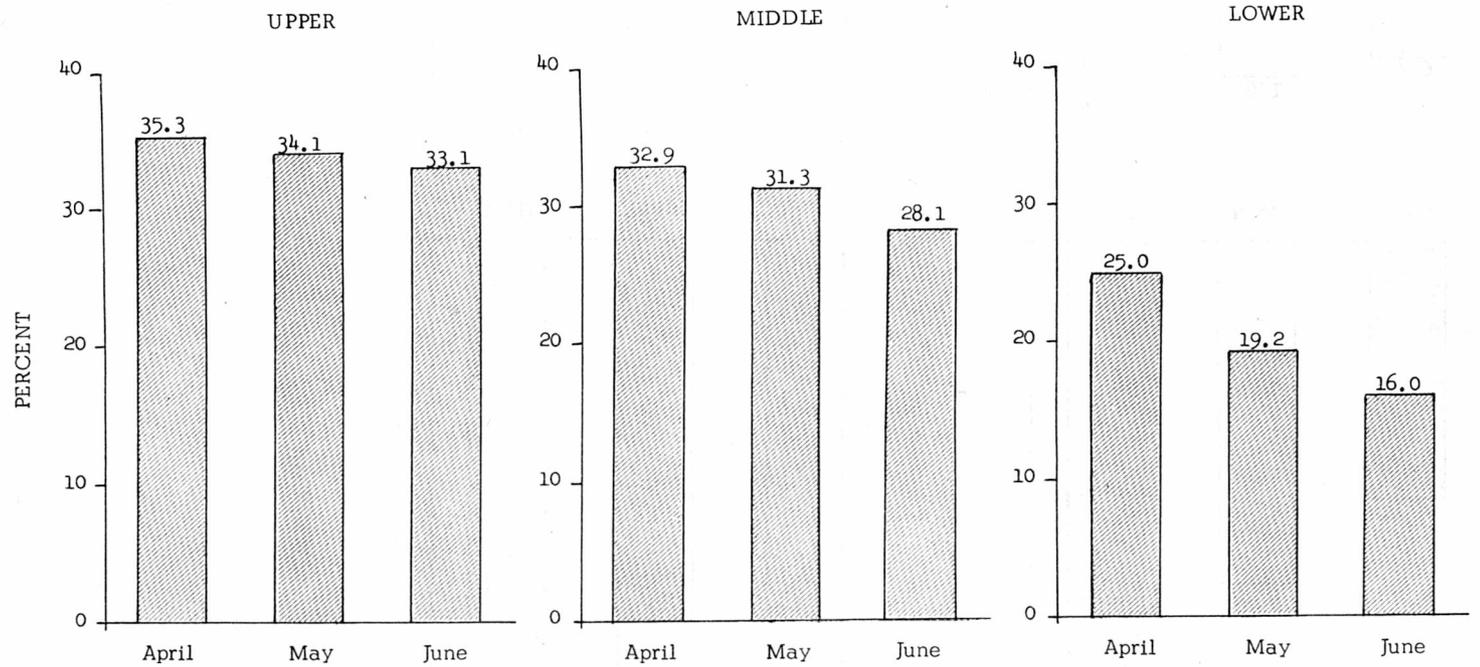
Age Group	Area	Sabin		Salk	
		Unknown Number	Unknown Status	Unknown Number	Unknown Status
3Mos.-5Yrs.	Upper				
	Middle		1	4	
	Lower			1	4
	Southeast		1	1	1
	Northwest			2	4
6-17 Yrs.	Upper				2
	Middle	2		1	5
	Lower		2	3	6
	Southeast	2			
	Northwest		2	6	12
18-24 Yrs.	Upper		2	1	
	Middle		4	2	7
	Lower		1		2
	Southeast				3
	Northwest				1
25-39 Yrs.	Upper		1		3
	Middle		7	2	11
	Lower		1	2	6
	Southeast		1	1	7
	Northwest		3		16
40 and Over	Upper		4	3	8
	Middle		5	4	14
	Lower		3	2	7
	Southeast	1		1	1
	Northwest	1	3		5
	Total	6	41	36	125

* Some persons are included in both the Sabin and Salk Columns.

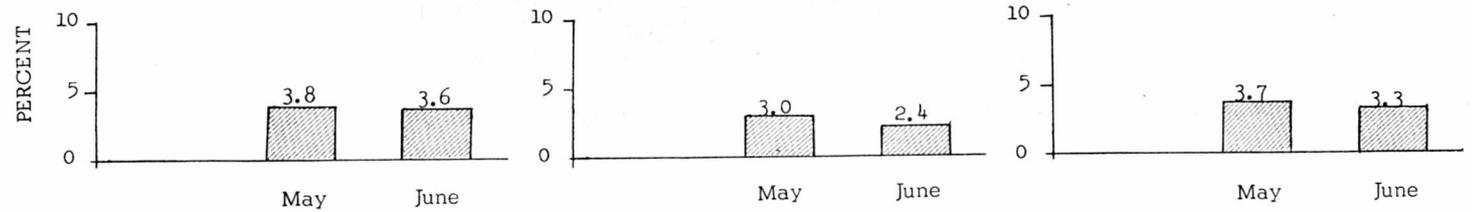
FIGURE 1. ANALYSIS OF CONTINUED PARTICIPATION IN THE SABIN CAMPAIGN
Harrisburg, Pa., City at Large, August, 1961

Percentage of the population in each Socioeconomic Area that attended the Sabin Clinics:

In April - and the proportions that returned to the clinics in May and June



In May for the first time - and the proportion that returned in June

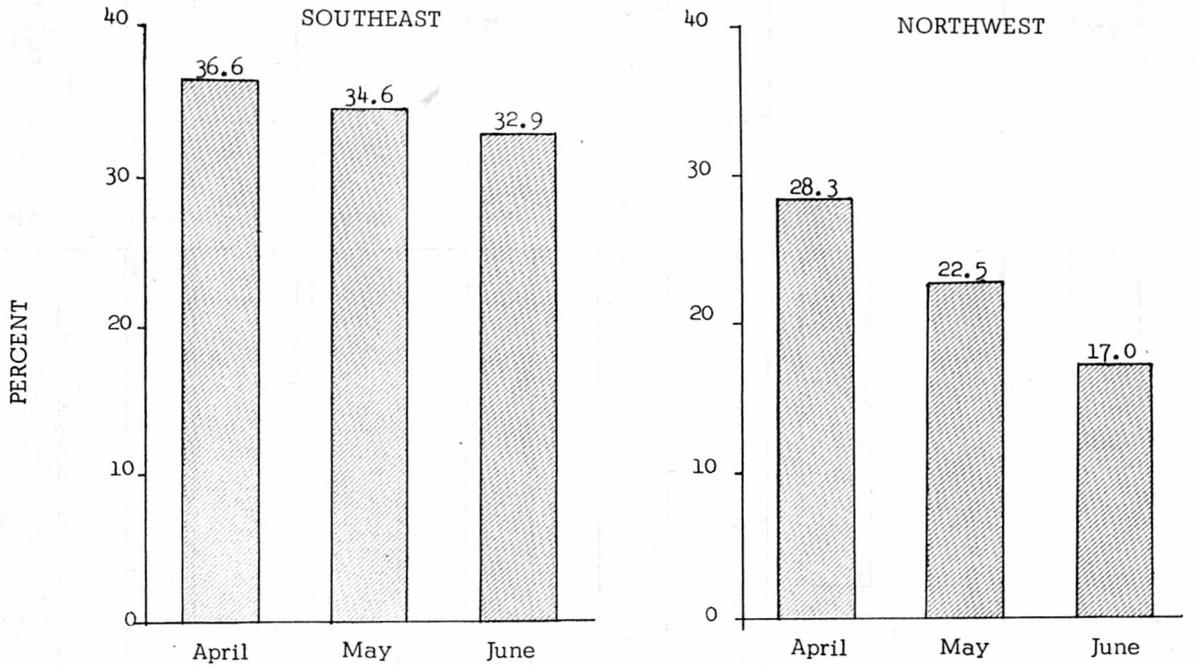


See Table 8 for details on persons who participated irregularly

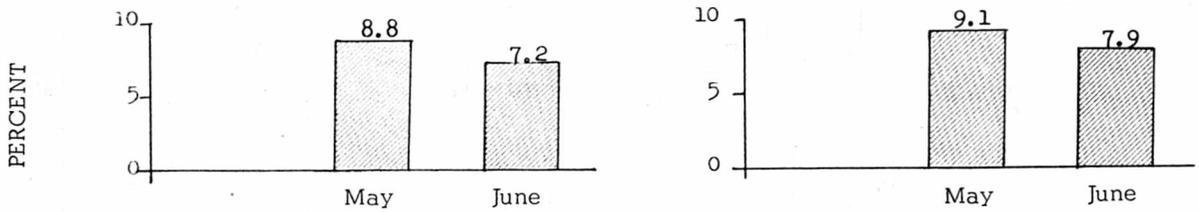
FIGURE 2. ANALYSIS OF CONTINUED PARTICIPATION IN THE SABIN CAMPAIGN
 Harrisburg, Pa., Housing Projects, August, 1961

Percentage of the population in group of Housing Projects that attended the Sabin Clinics:

In April - and the proportions that returned to the clinics in May and June

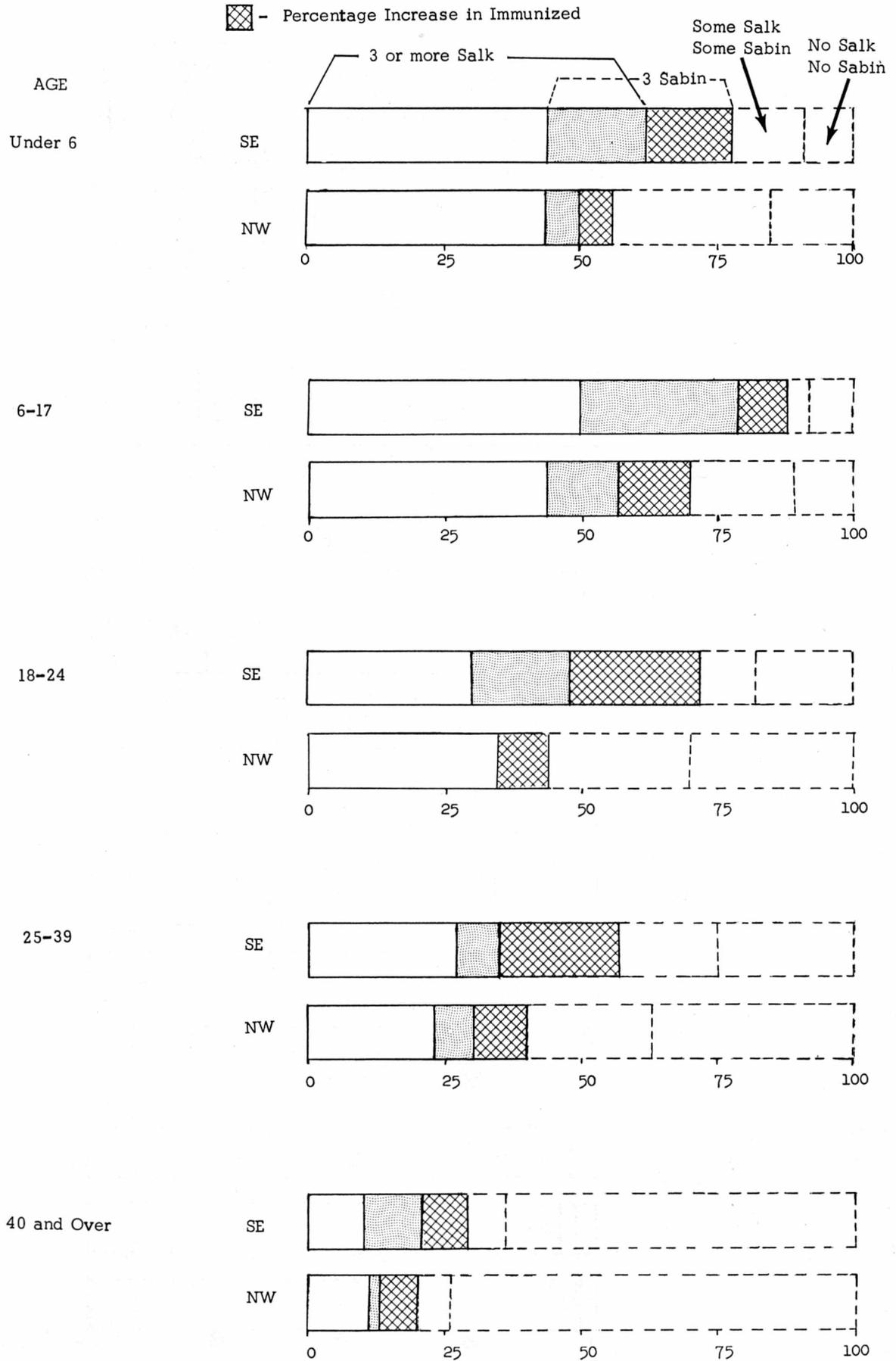


In May for the first time - and the proportion that returned in June

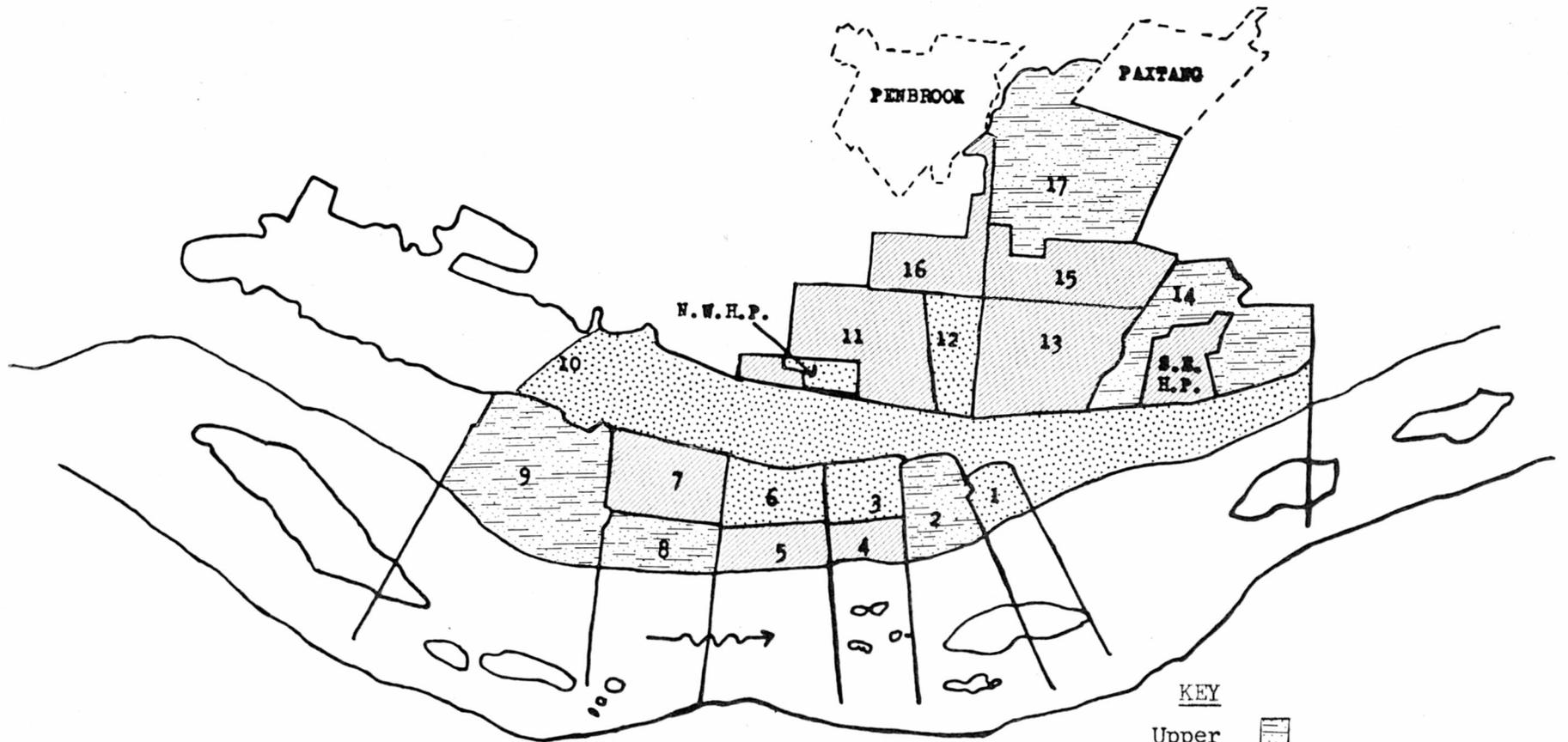


See Table 8 for details on persons who participated irregularly

FIGURE 4. FINAL SALK AND SABIN STATUS - Percentages
 Harrisburg, Pa., Housing Projects, August, 1961



CITY OF HARRISBURG, PENNSYLVANIA
Final Socioeconomic Classification
Immunization Survey
August, 1961



KEY

- Upper 
- Middle 
- Lower 

N. W. H. P. -- Northwest Housing Project
S. E. H. P. -- Southeast Housing Project

